



Implementation of Academic Information System (SIKAD) to Support Institutional Accreditation at the Air Force Academy

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ABSTRACT

The Indonesian Air Force Academy (AAU) is committed to improving the quality of education by developing an Academic Information System (Siakad). Siakad plays a crucial role in enhancing academic administration efficiency, facilitating the management of educational data, and supporting institutional accreditation achievements. This system enables the management of data related to cadets, lecturers, courses, and community service activities. With Siakad, academic administrative processes that were previously manual can now be handled more effectively and efficiently, reducing human errors and ensuring transparency. The use of Siakad at AAU has great potential to improve efficiency, transparency, and accuracy in education management. To achieve this, AAU must ensure technological infrastructure improvements, intensive training for lecturers and administrators, and better integration of various systems supporting academic activities.

INTRODUCTION

The Air Force Academy (AAU) requires a good learning system to ensure optimal quality of education for cadets. A good learning system must include a comprehensive and structured curriculum, designed to equip cadets with knowledge and skills relevant to the needs of the modern military world (Winaryati, 2018). In addition, innovative and interactive teaching methods, such as the use of simulations, augmented reality technology, and e-learning, can increase the effectiveness of learning and make the learning process more interesting and meaningful. Supporting facilities, such as laboratories, digital libraries, and comfortable study rooms, are also very important in creating a conducive learning environment (Widigdo & Aziz, 2021). Furthermore, training and professional development for lecturers and instructors ensure that they have the competencies needed to teach well (Cholilah et al., 2023). A good learning system must also include continuous evaluation and feedback, allowing cadets to understand their progress and areas that need improvement. This holistic approach not only prepares cadets academically, but also shapes their character, discipline, and leadership. Thus, the academy can produce competent officers who are ready to face future challenges. To ensure that the AAU institution meets the quality standards that have been set in various aspects of education, training, and administration, an accreditation stage is required (Hendarman, 2019).

The current condition of the infrastructure at AAU to support Siakad is not yet adequate, such as the lack of building facilities and technical problems such as servers, hardware and software that do not support this system, thus hampering the teaching and learning process at AAU. Siakad at AAU has been held in early 2022 as the developer is the Air Force Education Office (Disdikau). In its implementation, there are still obstacles, one of which is that if the system is run simultaneously, Buffering Data is still found which disrupts the teaching and learning process. From this obstacle, the Siakad Application has not been optimal in its use. AAU itself has conduct a Siakad function test involving lecturers, cadets and administrators. In the function test, there are several systems that need to be readjusted to the teaching and learning conditions at AAU. The function test has only been carried out once so that the understanding of lecturers, cadets and administrators is not optimal. AAU Siakad processes data and processes academic activities involving cadets, lecturers and the Siakad administrator section (Yani et al., 2019). Siakad with the concept of utilizing a portal has become a necessity and demand for the development of technology and information, especially providing information in the academic world that functions as an integrator of academic information in study programs as well as a means of communication between AAU communities. There are several main objectives of Siakad, namely improving performance and service, which implements an application-based information system, to make it easier for users to find academic information, as a guide to help carry out effectiveness related to academics, such as viewing courses, accessing study results, entering study plans, viewing final transcripts, entering the results of research by lecturers and cadets, entering community service activities and other teaching activities (Sulaeman et al., 2023).

From the various problems above, the activities carried out include conducting a comprehensive evaluation of Siakad by collaborating between AAU and Disdikau and developers (fendors) in terms of fulfilling supporting facilities and infrastructure, including checking information technology infrastructure including servers, hardware and software and the availability of competent human resources in managing this system. Conducting continuous socialization and training of Siakad involving AAU lecturers, cadets and administrators so that the implementation of Siakad use can be achieved and understanding of Siakad can be properly absorbed. Siakad is one of the public services for lecturers and cadets which is expected to improve performance effectively and efficiently and can support institutional accreditation at AAU (Siregar & Situmeang, 2022).

LITERATURE REVIEW

Siakad is an important component in supporting academic activities in higher education, including in military environments such as AAU (Winantu & Viony, 2023). The implementation of Siakad aims to improve the efficiency of academic data management and facilitate access to information for the academic community. In the context of military education, Siakad plays a vital role in supporting various academic processes, such as managing lecture schedules, assessments, and monitoring the academic development of cadets (Fathul, 2021). In addition, Siakad also functions as a communication and collaboration platform between lecturers, cadets, and administrators, so that it can create a more integrated and coordinated learning ecosystem (Subagyo & Sholeh, 2023).

Effective implementation of Siakad not only provides operational convenience for institutions, but also has a direct impact on the accreditation assessment of an educational institution. Accreditation is one of the main indicators of the quality of an educational institution that involves a comprehensive evaluation of various aspects, including academic management, supporting facilities, and management performance (Lestari & Aini, 2015). A well-integrated Siakad system can make a significant contribution to the accreditation process, by providing accurate, real-time, and organized data. At AAU, the use of Siakad is expected to support the documentation and reporting processes required to meet national and international accreditation standards.

However, the success of Siakad implementation is inseparable from the technical and non-technical challenges that must be faced. Obstacles such as limited technological infrastructure, such as inadequate servers and hardware, and lack of training for system users can hinder the effectiveness of Siakad. Therefore, continuous improvement efforts are needed, including improving technological infrastructure and providing training to lecturers, cadets, and administrators. In addition, periodic evaluation and adjustment of the system to dynamic academic needs are very important to ensure that Siakad can function optimally in supporting the performance and accreditation of institutions at AAU (Agustiansyah, 2017).

Information Systems Quality (ISQ) Model Theory.

According to DeLone & McLean (2003) this Model Theory can be a valuable framework for measuring and improving the effectiveness of Siakad (Anaam et al., 2023). This model, which consists of six dimensions: usability, ease of use, accuracy, reliability, security, and user satisfaction, can help AAU in evaluating the existing Siakad Quality by assessing Siakad based on the six ISQ dimensions, AAU can identify areas that need to be strengthened and improved. This can help AAU in ensuring that its system meets user needs and supports academic processes effectively, increasing user satisfaction in this case increasing the usability, ease of use, accuracy, and reliability of Siakad can increase user satisfaction, both from lecturers, staff, and cadets (Dimuksa, 2020). Users who are satisfied with the system will be more motivated to use it actively, which can increase the efficiency and effectiveness of the academic process. Then the next thing is that it can support Institutional Accreditation where high-quality Siakad is one of the important factors in assessing institutional accreditation. By using ISQ as a guide, AAU can demonstrate to the accreditation team that its system meets high quality standards and supports the achievement of institutional goals. Improving Academic Performance where optimal Siakad can help AAU improve academic performance, such as increasing passing grades, accelerating study completion times, and improving research quality. This can be achieved by providing easy and fast access to information, facilitating effective communication between lecturers and students, and supporting innovative teaching and learning processes (Suryawan, 2018). In terms of improving the reputation of the Institution where AAU's reputation as a quality higher education institution can be strengthened by having superior Siakad. A system that meets user needs and supports the achievement of institutional goals will provide a positive image for AAU in the eyes of stakeholders (Hadiyanto et al., 2020).

E-Government Theory

E-Government theory emphasizes the use of information and communication technology (ICT) to increase efficiency, transparency, and accountability in public services, including the education sector. In the context of the implementation of the Academic Information System (SIKAD) at AAU, E-Government provides a relevant framework for integrating academic processes to support institutional accreditation. SIKAD, as a form of E-Government implementation, enables more structured academic data management, starting from student registration, grade management, to documentation of educational achievements. This directly contributes to the availability of valid, fast, and accurate data which is an important indicator in accreditation assessment.

In addition, the implementation of SIAKAD based on E-Government strengthens the transparency and accountability aspects. All parties, including management, lecturers, students, and accreditation parties, can access data according to their respective access rights, which minimizes the risk of data manipulation. This also allows for more objective and data-based evaluations, thus meeting recognized higher education quality standards. Furthermore, this system facilitates the internal and external audit process, which is often part of accreditation, by providing a well-organized digital footprint.

From an efficiency perspective, SIAKAD supports the automation process of various administrative activities, which not only reduces manual workload but also increases the productivity of administrative staff. Thus, time and resources can be allocated to other strategic activities that support the development of educational quality at AAU. This application also supports integration between units in the academy environment, thus creating a more collaborative and integrated work system.

However, the implementation of E-Government through SIAKAD is not free from challenges, such as the readiness of human resources, technological infrastructure, and data security. The need for intensive training and significant initial investment are aspects that must be anticipated by AAU. However, the long-term benefits offered, such as increasing institutional competitiveness and improving service quality, make this implementation very relevant in the digital era.

Overall, the E-Government theory is a strategic foundation for AAU in developing SIAKAD to support institutional accreditation. By implementing an integrated, transparent, and data-based system, AAU can meet better accreditation assessment standards, while increasing public trust in the institution. This application is not only an administrative tool, but also an integral part of the digital transformation that strengthens the institution's position in the national and international higher education arena.

According to experts (Eko Indrajit, 2002), E-Government is a concept that has universal basic principles, but its understanding and application in a country cannot be separated from the factors: history, culture, education, political views, economic conditions of each country (Suriyani, 2018). This theory discusses how Siakad can be used to improve governance and public services at AAU. The implementation of E-Government can help increase transparency, accountability, and efficiency of the institutional accreditation process. E-Government emphasizes the integration of public services electronically. A well-integrated Siakad can simplify the academic administration process, such as processing grades, to issuing diplomas. This will increase the efficiency and effectiveness of academic services at AAU, thereby supporting the achievement of institutional accreditation. E-Government also encourages transparency and accountability in the management of public information (Zsazsa & Nasution, 2023). A transparent and accountable Siakad can provide easy access for AAU cadets, lecturers, and staff to obtain the academic information they need. This will increase stakeholders' sense of ownership and responsibility towards AAU, which is also an important indicator in institutional accreditation.

Technology Acceptance Model (TAM) Theory

Technology Acceptance Model (TAM) is a theory that explains the acceptance of technology based on two main factors: perceived usefulness and perceived ease of use. In the context of the implementation of the Academic Information System (SIKAD) at the Air Force Academy, TAM can be used to identify key factors that influence the adoption of technology by users, such as lecturers, administrative staff, and cadets. Perceived usefulness of SIKAD includes the system's ability to improve the efficiency of academic data management, automatic reporting, and ease of data access to support institutional accreditation assessments. Meanwhile, perceived ease of use ensure that users can easily learn and operate the system without significant technical barriers. The successful implementation of SIKAD in accordance with the TAM principle can increase user trust and ensure accurate and well-documented data, which are important elements in the institutional accreditation process. By optimizing technology acceptance through the TAM approach, the Air Force Academy can utilize SIKAD as a strategic tool to improve academic quality, management transparency, and institutional competitiveness at the national level.

The Technology Acceptance Model (TAM) theory introduced by Fred Davis in 1989 is one of the most influential models in understanding how users adopt and accept new technologies (Kusnadi, 2020). This model focuses on two main variables that determine a person's intention and attitude in using technology, namely Perceived Usefulness and Perceived Ease of Use. Perceived Usefulness refers to the belief that using a particular technology will improve a person's performance in their work. If a person feels that the technology can make work easier or increase efficiency, then they are more likely to use the technology (Wiza Yunifa & Yesi Sriyeni, 2022). Perceived Ease of Use is the belief that the technology is easy to use and learn. If a person feels that they can easily operate the technology without facing significant obstacles, then they will be more motivated to use it. These two variables directly affect the user's attitude towards technology, which then affects their intention to use the technology. TAM also states that these attitudes and intentions will determine the actual level of adoption of technology in everyday life. TAM is a development of the Theory of Reasoned Action (TRA), which emphasizes the relationship between beliefs, attitudes, intentions, and behavior (Lailatul et al., 2023). However, TAM is more specific in the context of technology adoption and has been widely used in research to understand various technologies, such as information systems, software, and internet-based technologies. This model continues to evolve and become the basis for many other theories in the study of technological behavior.

METHODOLOGY

Literature Study

Literature study is an important initial step to understand the basic concept of Academic Information System (SIKAD), institutional accreditation needs, and SIKAD implementation experience in other educational institutions. Literature review allows researchers to build a solid theoretical framework, which is the basis for identifying key success factors and challenges in SIKAD implementation. The basic concept of SIKAD includes core functionalities such as academic data management, student administration, reporting, and integration with other supporting systems. This is relevant in supporting institutional accreditation needs, where data accuracy, documentation, and process efficiency are the main indicators of assessment.

The experience of other institutions in implementing SIKAD is also an important reference. Previous research revealed that the success of implementation is influenced by technological readiness, user competence, and management support (Marta et al., 2019). This study also highlights the importance of training and system adaptation to local needs. By combining information from scientific journals, books, and research reports, this literature study provides not only empirical insights but also practical guidance for institutions, such as the Air Force Academy, to maximize the potential of SIKAD in supporting accreditation and increasing competitiveness.

Interview

Interviews with various parties involved in the implementation of the Academic Information System (SIKAD) at AAU are a strategic step to obtain a comprehensive picture of the implementation process, challenges, and perceptions of the benefits of the system in supporting institutional accreditation. Key informants include SIKAD managers, administrative staff, lecturers, and representatives of accreditation institutions. SIKAD managers can provide insight into the technical aspects of system development, implementation strategies, and obstacles faced, such as data integration or user training.

Administrative staff are an important source for understanding the operational impact of SIKAD, including efficiency in managing academic data and reporting relevant to accreditation requirements. Lecturers, as the main users of the system, provide perspectives on the ease of use and contribution of SIKAD in supporting academic tasks, such as filling in grades and accessing student data. Meanwhile, interviews with representatives of accreditation institutions serve to ensure the conformity of SIKAD with accreditation assessment indicators, especially regarding transparency, data accuracy, and accountable documentation. This interview aims to explore information about the implementation process, challenges faced, and their perceptions of the benefits of SIKAD in supporting accreditation (Syardiansah, 2019). The results of this interview are expected to provide guidance for identifying the strengths and weaknesses of SIKAD implementation at AAU, so that it can be optimized as a tool strategic in supporting the improvement of education quality and institutional accreditation.

Participatory Observation

Analysis of documents related to the implementation of the Academic Information System (SIKAD), such as user guides, technical reports, and accreditation documents, plays an important role in understanding the policies, procedures, and standards implemented at AAU. The user guide is the basis for evaluating the extent to which users (lecturers, administrative staff, and cadets) understand the functions and benefits of SIKAD. This document also helps identify technical aspects that support perceived ease of use within the Technology Acceptance Model (TAM) framework.

Meanwhile, the technical report provides insight into system architecture, reliability, and data security, which are key elements to ensure smooth operation and user trust. Analysis of technical documents allows for an evaluation of the extent to which SIKAD meets information security standards and compatibility with institutional needs. Accreditation documents are an important reference in linking SIKAD performance with academic quality indicators and education management assessed in the accreditation process. This observation will cover the data input process, academic information management, and the use of SIKAD by lecturers and students (Setiawan et al., 2020). By integrating the analysis results from these various documents, AAU can obtain a comprehensive picture of the effectiveness of SIKAD implementation. This understanding allows for data-based decision making for system optimization, operational efficiency improvement, and continuous fulfillment of accreditation standards.

Document Analysis

Documents related to the implementation of SIKAD such as user guides, technical reports, and accreditation documents will be analyzed. This analysis aims to understand the policies, procedures, and standards applied in the use of SIKAD at AAU (Indrasari & Wahyudi, 2018).

RESEARCH RESULTS AND DISCUSSIONS

Technology and Infrastructure Constraints

The results of the study show that one of the main problems in the implementation of SIKAD at AAU is the limited technology infrastructure that is not yet adequate, such as limited server capacity, hardware, and software that are less than optimal in supporting academic activities digitally. This has an impact on the occurrence of data buffering when the system is accessed simultaneously, which is disruptive teaching and learning process and other academic activities. In addition, limited building facilities that do not support the management of SIKAD add to the challenges in implementing this system effectively.

Lack of User Understanding and Training

In addition to technical issues, non-technical factors such as the understanding of lecturers, cadets, and administrators towards Siakad are still limited. The Siakad function test has only been conducted once, so that understanding of the system's operations is not evenly distributed among users. Many lecturers have not utilized Siakad optimally in teaching activities due to the lack of adequate training and the incompatibility of facilities with the material being taught. Therefore, continuous socialization and training need to be carried out to improve the understanding and skills of users in utilizing Siakad effectively.

The Role of Siakad in Accreditation

Siakad plays an important role in supporting institutional accreditation because it enables more structured and transparent management of academic data. With Siakad, academic activities such as grade evaluation, curriculum development, and reports on Tri Dharma Perguruan Tinggi activities can be accessed and managed more easily. However, the limitations of the current system are an obstacle in the accreditation assessment process, especially related to the management of exam data which is still done manually. Accreditation requires a system that is able to provide accurate real-time data, so optimizing Siakad is an urgent need for AAU to meet higher accreditation standards. By overcoming these obstacles through infrastructure improvements and user training, the implementation of Siakad is expected to support AAU's academic performance and institutional accreditation more effectively.

CONCLUSIONS AND RECOMMENDATIONS

Based on the discussion of the manuscript on the Implementation of the Academic Information System (Siakad) to support Institutional Accreditation at AAU, the following conclusions can be drawn:

1. In an effort to optimize the implementation of Siakad at AAU, the approach through the DeLone and McLean Information Systems Success Model (1992) and the Technology Acceptance Model (TAM) by Davis (1989) can be an effective solution. The DeLone and McLean model emphasizes the importance of system and information quality in increasing user usage and satisfaction, which has a direct impact on individual and organizational performance. Meanwhile, TAM explains that perceived benefits and perceived ease of use greatly influence technology acceptance. By improving system quality, feature relevance, and supporting technology infrastructure, as well as conducting appropriate training and socialization, it is hoped that Siakad can be used more optimally by lecturers, cadets, and administrators. This will contribute to increasing the efficiency of academic and administrative management, as well as supporting the readiness of the Air Force Academy in achieving higher accreditation standards.

2. The implementation of Siakad at AAU is a strategic step in supporting the modernization of education and more efficient management of academic data. The success of the implementation of Siakad is highly dependent on the readiness of facilities and infrastructure, including adequate technological infrastructure, hardware, and internet networks. Policies that limit internet access in the cadet environment need to be evaluated, because they have a negative impact on their ability to access information and improve digital skills which are very important in the modern era. By strengthening network infrastructure and improving digital literacy through training, as well as creating institutional support that encourages the productive use of technology, AAU can optimize the use of Siakad. Improving these facilities and infrastructure will not only improve the efficiency of academic administration, but also support improving institutional accreditation, because Adequate technological infrastructure is an important indicator in assessing the quality of educational institutions.
3. The implementation of Siakad at AAU is a strategic step to improve the efficiency of academic and administrative management. However, the interest in using Siakad by lecturers, cadets, and administrators is not optimal, due to various factors such as lack of training, resistance to new technology, and inadequate infrastructure. AAU can identify factors that influence interest, such as attitudes toward technology, social influence, and supporting conditions. Steps such as training, infrastructure improvement, and strong institutional support can help overcome these obstacles. Optimizing the use of Siakad will support digital transformation at AAU, improve operational efficiency, and support the achievement of higher accreditation standards through the implementation of integrated and efficient technology in academic and administrative activities to support institutional accreditation.

Recommendations that can be given in writing the manuscript for the Implementation of the Academic Information System (Siakad) to support Institutional Accreditation at the Air Force Academy are as follows:

Based on the analysis of the implementation of the Academic Information System (Siakad) at the Air Force Academy (AAU) using the DeLone and McLean model and the Technology Acceptance Model (TAM), it is recommended to improve the quality of the system and supporting infrastructure, such as hardware and internet networks, to ensure more stable and responsive Siakad performance. In addition, more intensive socialization and ongoing training are needed for lecturers, cadets, and administrators to improve their understanding of the benefits of Siakad, so that users can directly feel the positive impact on the efficiency of academic administration. Adjusting Siakad features to be more relevant to the specific needs of teaching and learning activities at AAU is also needed, such as the development of an assessment system for essay questions. With these steps, it is hoped that the use of Siakad will increase, which will ultimately support the achievement of better institutional accreditation, as well as support digital transformation in the educational environment.

ADVANCED RESEARCH

Research on the implementation of the Academic Information System (SIKAD) at the Air Force Academy needs to focus on optimizing the digital system to support the overall institutional accreditation process. SIKAD has a strategic role in improving the efficiency of academic governance, starting from student data management, curriculum, grades, to academic performance reporting required in the accreditation process. The implementation of this system must meet the principles of accuracy, transparency, and integration between sections so that all academic data can be accessed in real time and is well documented.

The study also needs to evaluate the readiness of digital infrastructure, the competence of human resources managing SIKAD, and compliance with national accreditation standards set by BAN-PT or LAM. The use of technology such as cloud computing and interactive dashboards can strengthen the reporting system and facilitate the monitoring and evaluation process. Collaboration between academic institutions, IT teams, and policy makers within the Indonesian Air Force is important to ensure the system runs optimally and sustainably. The results of this study are expected to be a reference in compiling a roadmap for academic digitalization that supports improving the quality of education and institutional accreditation at the Indonesian Air Force Academy.

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